IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

WENGER, F. et al.	Atty. Ref.: 4114-9; Confirmation No. 1361
Appl. No. 10/751,117	TC/A.U. 2611
Filed: January 05, 2004	Examiner: Flores, Leon

For: METHOD AND DEVICE FOR PROVIDING TIMING INFORMATION IN A WIRELESS COMMUNICATION SYSTEM

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August 14, 2007

Box AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REQUEST FOR RECONSIDERATION AFTER FINAL

In response to the final action dated May 17, 2007, Applicants respectfully request reconsideration.

In the Office Action, the Examiner maintains the anticipation rejection based on Weigand arguing that "[o]ne skilled in the art would know that, scaling of a signal may take place either before or after quantization." Applicants submit that this is not the appropriate legal analysis for anticipation. The language being employed by the Examiner admits that Weigand does not disclose "scaling the training signal with a variable scaling factor" followed by "quantizing the scaled training signal." Instead, the Examiner is relying on the level of skill to supply the missing claim features. But for anticipation, every limitation contained in the claims must be present in the Weigand reference, and because Weigand is missing the quoted claim features, it

does not anticipate the claim. *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565 (Fed. Cir. 1986).

Any argument that an element that an element is inherent in a prior art reference requires proof that the element is *necessarily present* in the reference. "Inherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." Trintect Indus., Inc. v. Top-U.S.A. Corp., 295 F.3d 1292, 1295 (Fed. Cir. 2002). That "necessarily present" proof requirement is lacking in the Examiner's rejection.

The Examiner also rejects the independent claims 1, 14, 16 and 19 under 35 U.S.C. 103 as being unpatentable over Weigand and newly-applied USP 6,023,493 to Olafsson. The rejection is also traversed.

For the obviousness rejection, the Examiner admits that Weigand fails to disclose "a variable scaling factor," relying on the μ-law and A-law encoding techniques disclosed in Olafsson for compressing training signals before transmission from a first modem 502 to a second modem 504 via a PSTN 506 during an initialization mode. The Examiner argues a skilled person would have known that μ-law/A-law compresssion includes scaling a signal with a variable scaling factor and then quantizing it. Based on that contention, the Examiner argues the independent claims are obvious if one uses Olafsson's μ-law/A-law compression in Weigand. Applicants disagree.

The independent claims in this application relate to a radio receiver and provide such a receiver with flexible derivation of timing information achieved by the claimed *variable* scaling factor. Neither Weigand nor Olafsson teach scaling of a radio receiver training patterns using a variable scaling factor followed by quantizing that variably scaled training signal.

On the one hand, Weigand relates to wireless communication. On the other hand,

Olafsson describes a synchronization technique for a fixed, wireline network--a PSTN. Different techniques and procedures are used to communicate over wireless and wireline networks. For example, synchronization in wireless networks is achieved in a different way than in fixed networks. Another example is the different digital modulation techniques used over a mobile radio channel as compared to a wire-bound systems. An equalization technique used to combat multi-path fading is unlikely to be as useful in a wireline receiver because multi-path is a wireless issue. So it is not necessarily the case that a person of ordinary skill in the art routinely combines teachings from these two different technical fields.

Further, the independent claims relate to a technique that is implemented in a radio receiver. Claims 16 and 19 claim a receiver, and method claim 1 recites a method that is implemented in a receiver. In contrast, the passage cited by the Examiner from Olafsson (column 5, lines 34 — 45) relates however to an encoder used to compress a signal before it is transmitted. Why would a person of ordinary skill in the wireless communication art be motivated to apply Olafsson's µ-law/A-law encoding for a signal to be transmitted by a wireline modem to a training signal provided by a radio receiver? The claimed scaling and quantizing is performed on a training signal within a radio receiver. That claimed scaling and quantizing has nothing to do the signal to be transmitted and received by the receiver. Moreover, when Olafsson describes the modem receiver, Olafsson refers only to the use of conventional synchronization techniques within that receiver. See column 7, lines 8 — 12: "It should be noted that synchronization scheme 540 may perform any number of conventional synchronization techniques known to those skilled in the art and that the present invention is not limited to any particular synchronization methodology" (emphasis added).

As explained in column 5, lines 34 — 45, Olafsson's synchronization or training signals

are encoded for transmission from the first to the second modem during an initialization mode. In other words, Olafsson is not directed to providing a matching training signal in a wireline receiver (let alone a radio receiver). Rather, Olafsson relates to transmitting a training signal which is included in a transmission signal to be received by a receiver and then simply matching it to the training signal stored in the receiver. The training sequence that is previously stored in the receiver in Olafsson (i.e., before receiving the transmitted signal) is not described in Olafsson as being scaled with a variable scaling factor. Indeed, a word search of Olafsson reveals that the words scale or scaling are <u>not</u> used.

The independent claims also describe correlating a quantized training signal provided in the receiver with a received digital signal. On the other hand, Olafsson describes using the μ-law and A-law encoding techniques to reduce the dynamic range of a D/A converter.

In addition, <u>the u-/A-law scaling described in Olafsson is not variable</u>. u-/A-law scaling prescribes a non-linear characteristic so that low level signals are quantized with a fine quantization step and high level signals are quantized with a coarse quantization step. When applying the μ-law or A-law to multiple signals, the nonlinear scaling is constant, i.e., it is always applied in exactly the same way to all the signals. There is no dynamic or variable scaling of the transmission signal, whether it includes a training signal or any other signal. Instead, it is the same non-linear scaling unconditionally applied in the same form to any and all signals.

Therefore, even if the skilled person would consider the teaching of Olafsson, (which he or she would not for the reasons explained above), he or she would at most arrive at a <u>constant</u> non-linear scaling which is <u>not variable</u>. In contrast, the independent claims recite <u>variably</u> scaling the training signal with a <u>variable scaling factor</u>. That variable scaling factor is

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significant because it provides control of the complexity of the correlating step by adjusting the number of quantized training values mapped on the value zero. See the explanation provided on page 4, 3rd paragraph; page 8, last paragraph; and page 9, 1st paragraph of the instant specification.

Accordingly, it is incorrect to argue that, according to the μ-law or A-law, signals would be scaled with a variable scaling factor and then quantized. The scaling in μ-/A-law according to a constant nonlinear characteristic is nothing more than a prescription of how to quantize an analog signal. Even if a person of ordinary skill would consider using Olafsson in Weigand, he or she would at most arrive at a technique for providing a signal which is quantized according to a non-linear, but constantly scaled characteristic. In contrast, the independent claims recite a variable scaling operation performed on a training signal in a radio receiver prior to and independent from a subsequent quantization operation, which enables control of the complexity of a subsequent correlation step in the receiver. Neither Weigand nor Olafsson nor a combination thereof leads the skilled person to such subject-matter or teaches that such advantages may be provided by that subject matter.

It is therefore respectfully requested that the finality office action be withdrawn and the application passed to allowance. An early decision on this request is earnestly solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: ______________________
John R. Lastova
Reg. No. 33,149

JRL:maa
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100